

REMARKS

Claims 1 through 20 were pending in this application. In response to the Office Action dated May 7, 2003, claims 1-8, 11-14 and 17-18 have been amended. Claims 15 and 16 have been canceled and newly written as independent claims 21 and 22, respectively. The dependencies of claims 17 and 18 have been amended in view of the newly added claims. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support for the present Amendment is apparent throughout the originally filed disclosure as, for example, page 8, lines 8-14 of the written description of the specification and Figs. 5 through 7. Applicants submit that the present Amendment does not generate any new matter issue.

Claims 15-18 were objected to under 37 CFR 1.75(c), as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. Specifically, the Examiner stated that claims 15, 16, 17 and 18 do not further limit claims 3 and 4. Applicants respectfully traverse. Claims 15 and 16 have been newly written in independent form as new claims 21 and 22. Thus, the objection under 37 CFR 1.75(c) over claims 15 and 16 is moot. Further, dependent claims 17 and 18 have been amended to properly depend from new claims 21 and 22, respectively. The Examiner is respectfully requested to reconsider and withdraw the objection.

Claims 11-14 were objected to under 37 CFR 1.75(c), as allegedly being of improper dependent form for failing to further limit the subject matter of a previous claim. Specifically, the Examiner stated that claims 11-14 broaden the scope of claims 3 and 4. Applicants respectfully traverse. Claims 11-14 have been amended to recite that x or y stabilizes within $\pm 5\%$. Thus, amended claims 11-14 further limit the subject matter of

claims 3 and 4. Accordingly, the Examiner is requested to reconsider and withdraw the rejection over claims 11-14.

Claims 3-18 were rejected under 35 U.S.C. § 112, second paragraph. Applicants respectfully traverse the rejection in view of the arguments and amendments.

The Examiner asserted that claims 3 and 4 were incomplete for allegedly omitting essential elements. Specifically, the Examiner stated that claims 3 and 4 do not define elements a, b, c, or d, and proffered that if a is 1 and b is 6 then x does not meet the requirement of claims 1 and 2 from which claims 3 and 4 depend. Applicants respectfully traverse.

Indefiniteness under the second paragraph of 35 U.S.C. § 112 is a question of law. *Tillotson Ltd. v Walbor Corp.*, 4 USPQ 2d 1450 (Fed. Cir. 1987). Accordingly, in rejecting a claim under the second paragraph of 35 U.S.C. § 112, the PTO is required to discharge its initial burden for providing a basis in fact and/or cogent reasoning to support the ultimate legal conclusion that one having ordinary skill in art, with the supporting specification in hand, would not be able to reasonably ascertain the scope or protection defined by the claim. *In re Cartwright*, 49 USPQ 2d 1464. Consistent judicial precedent holds that reasonable precision in light of the particular subject matter involved is all that is required by the second paragraph of 35 U.S.C. § 112. *Miles Laboratories, Inc. v. Shandon, Inc.*, 27 USPQ 2d 1123 (Fed. Cir. 1993); *North American Vaccine, Inc. v. Amercian Cyanamide Co.*, 28 USPQ 2d 1333 (Fed. Cir. 1993); *U.S. v. Telectronics, Inc.*, 8 USPQ 2d 1217 (Fed. Cir. 1988). Applicants stress that a patent specification must be viewed through the eyes of one having ordinary skill in the art. *Miles Laboratories, Inc. v. Shandon, Inc.*, *supra*.

In applying the above legal tenets to the exigencies of this case, Applicants submit that one having ordinary skill in the art would not have been confused by the use of the elements a, b, c and d, particularly as employed in the context of the claimed invention. Claims 3 and 4 recite in pertinent part, that element a, b, c or d is a natural number ranging from 1 to 30, with $a < b$ and $c < d$. The Examiner's arbitrary selection of values for a and b is inconsistent with the present claims. Claim 3 recites that $x = a/b$, and thus naturally includes the condition that $a/b > 1/5$, in view of its dependency on claim 1 which recites that $x > 1/5$. The same situation applies to claim 4 wherein $1/5 < a/b < 1/2$, which is consistent with the limitations of claim 2. Claims 3 and 4 has been amended to further clarify these relationships.

Thus, the Examiner improperly selected values which are inconsistent with the present claim structure. Moreover, the Examiner has failed to offer any cogent reasoning as to why one having ordinary skill in the art would have had difficulty understanding Applicants' claimed invention. Applicants submit, therefore, that one having ordinary skill in the art would not have difficulty understanding the scope of the presently claimed invention, particularly when reasonably interpreted in light of the supporting specification. The Examiner provided no arguments to justify why one having ordinary skill in the art would have had difficulty understanding Applicants' claimed invention. Therefore, it is respectfully submitted that the imposed rejection of claims 3-4 under 35 U.S.C § 112, second paragraph is not legally viable and hence, solicit withdrawal thereof.

The Examiner stated that the phrase "regularly adjusted" is not clear. Applicants respectfully traverse. Claims 3 and 4 have been amended to remove the phrase "regularly

adjusted" from the claims. Accordingly, the Examiner is requested to reconsider and withdraw the rejection.

Claims 5-6 were rejected because of a grammatical error in the claims. Claims 5 and 6 have been amended to address the Examiner's concerns. Therefore, the withdrawal of the rejection is solicited.

Claims 7-8 have been amended in accordance with the Examiner's suggestion for alternative Markush language. The Examiner is therefore requested to withdraw the rejection over claims 7-8.

The Examiner stated that claims 11-14 recite the phrase "a composition variation range" and that the phrase renders the claims indefinite. Applicants respectfully traverse the rejection. Claims 11-14 have been amended and the above phrase has been removed from the claims. The Examiner is therefore requested to withdraw the rejection over claims 11-14.

The Examiner asserted that claims 17 and 18 were incomplete for allegedly omitting essential elements. Specifically, the Examiner stated that claims 17 and 18 do not define elements e or f. Applicants traverse.

Initially, Applicants stress that the Examiner has failed to offer any reasoning as to why one having ordinary skill in the art would have had difficulty understanding Applicants' claimed invention. For this reason alone the rejection is not viable. Moreover, claims 17 and 18 each recite that element e or f is a natural number ranging from 1 to 30, with $e < f$. Thus, the claims clearly define these elements and one having ordinary skill in the art would not have difficulty understanding the scope of the presently claimed invention, particularly

when reasonably interpreted in light of the supporting specification. Accordingly, the Examiner is requested to withdraw the rejection over claims 17-18.

Claims 1-8 and 11-20 were rejected under 35 U.S.C. § 102(b) as being anticipated over Igawa et al. (JP 10-241691, hereinafter "Igawa"). Applicants respectfully traverse the rejection for the reasons set forth *infra*.

Claims 1-20 were rejected under 35 U.S.C. § 102(e) as being anticipated over Nakano et al. (U.S. Pat. No. 6,306,542, hereinafter "Nakano"). Applicants respectfully traverse the rejection for the reasons set forth *infra*.

Claims 1-16, 19 and 20 were rejected under 35 U.S.C. § 102(e) as being anticipated over Dahn et al. (U.S. Pat. No. 6,168,887, hereinafter "Dahn"). Applicants respectfully traverse the rejection for the reasons set forth *infra*.

The factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of a claimed invention, such that the identically claimed invention is placed into the possession of one having ordinary skill in the art. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994). Moreover, in imposing the rejection under 35 U.S.C. § 102, the Examiner is required to specifically identify wherein an applied reference is perceived to identically disclose each feature of a claimed invention. *In re Rijckaert*, 9 F.3d 1531, 28 USPQ2d 1955 (Fed. Cir. 1993); *Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). That burden has not been discharged. Moreover, there are significant differences between the claimed invention and the compositions individually disclosed by Igawa, Nakano or Dahn, that would preclude the

factual determination that either one of the applied references identically describes the claimed inventions within the meaning of 35 U.S.C. § 102.

Specifically, independent claims 1 and 21-22, each recites in pertinent part, that the positive electrode active material includes the layered lithium manganese compound having a bond overlap population (BOP) value that is more than or equal to 0.23. Further, as is discussed at page 8, lines 8-19 of the specification, if a BOP value is high, it can be determined that the change in the crystal structure due to a thermal history is small, that is, the stability of the layered lithium manganese compound of the Li deficient type is high. For example, when the Li-deficient quantity x is larger than $1/5$ (as in claims 1 and 21), a high BOP value can be obtained and the structure stability due to the Li deficiency can be secured. When the Li-deficient quantity x is larger than $1/2$, the Li-containing quantity in the molecular crystal becomes undesirably smaller than that of the prior art's spinel type LiMn_2O_4 . See specification at page 9, lines 5-27. Moreover, the Examiner's attention is directed to the comparative data of the present specification, depicted at Figures 5-7 and 10, which clearly supports the claimed relationship between the BOP value and the Li-deficiency. In contrast with the present invention, Igawa, Nakano and Dahn each fails to disclose or remotely suggest the claimed BOP value. Therefore, the references fail to disclose every limitation of the present claims. Thus, the rejections are not valid and should be withdrawn for at least these reasons.

In addition, Igawa teaches a lithium manganese compound represented by the general formula LiMeO_2 as a positive active material. The lithium manganese compound includes Li, O and Mg as essential elements, and the Mg exists in the Li position in structure. See Igawa at abstract and claim 1. That is, Mg replaces the lithium-deficient

quantity in the structure. Nakano discloses a lithium manganese compound represented by $\text{Li}_{1-x}\text{A}_x\text{MnO}_{2-d}$ where the lithium-deficient quantity is substituted with an alkali metal A. In contrast, the lithium manganese compound of claim 1 of the present invention, is represented by a general formula $\text{Li}_{1-x}\text{MO}_2$ and the lithium-deficient is not substituted with an alkali metal including Mg. Therefore, the lithium manganese compound of claim 1 is structurally distinct from those disclosed in both Nakano and Igawa.

Claims 9-10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Igawa et al. (JP 10-241691) in view Dahn et al. (U.S. Pat. No. 6,168,887). Applicants respectfully traverse the rejection for substantially the same reasons as outlined above. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge readily available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Applicants submit that even if the references were properly combined, the references neither disclose nor suggest every element of the present claims. Accordingly, the rejection is not legally viable and should be withdrawn.

It is believed that all pending claims are now in condition for allowance. Applicants therefore respectfully request an early and favorable reconsideration and allowance of this application. If there are any outstanding issues which might be resolved by an interview or an Examiner's amendment, the Examiner is invited to call Applicants' representative at the telephone number shown below.

09/929,359

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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